

Summary of MODIS Status and Activities through mid-December 2005

Instrument Status

The Terra and Aqua MODIS instruments continue to operate nominally overall from the science perspective. The Terra Solid State Recorder (SSR) Printed Wire Assembly issue is still being studied and arguments collected to advocate recycling the SSR and arguing against going to a 60% night/40% day collection procedure, as opposed to the present 50/50 % process now. When those updated arguments will go forward to NASA Headquarters is tbd.

Data Processing Status (as of December 12, 2005)

The Goddard DAAC continues to perform successfully in producing and delivering Level 0 and 1 products. The GSFC DAAC processing continues to consistently stay 1 day or less behind the "leading edge" in processing MODIS data. Overall, considering forward processing and reprocessing (i.e., all data processing streams) of Terra and Aqua MODIS data, the Goddard DAAC is now operating at over 6X rates. The delivery of MODIS data from the Goddard DAAC is pretty steady of late operating at near 2 Terrabytes per day and over 27,000 granules per day.

The MODAPS Aqua and Terra forward processing is as close to real time as possible (1 day behind). MODAPS continues to distribute L0 data to the Ocean Color Data Processing system (OCDPS). The distribution of the Aqua data has been completed and distribution of the Terra data will start shortly. Approximately 110TB will be transferred and will take approximately 90 days (estimated completion 3/15/06).

The MODAPS processing of Terra Oceans SST has continued. A 1x Collection 5 forward processing stream has been maintained on the reprocessing machine and is 3 days behind real time. Reprocessing of the interval from Julian Day 001, 2001 through 282, 2002 has been completed. This completes the Terra Collection 5 SST reprocessing. Forward processing of Terra SST by MODAPS will continue until the OCDPS is ready to assume that activity.

"Collection 5" activities for the MODIS Atmospheres products are progressing. The L2/L3 products for July 2000 will be regenerated starting on 12/12/05 using the existing PGE 69, 70, 57, and 83. The L2 products will be ingested into the Atmosphere Archive and Distribution System (AADS) [see more about AADS at: <http://aadsweb.nascom.nasa.gov/>] and the L3 products will be held on the mtvs2 production disk. The L2 PGEs will be subject to a final review by Michael King's team. Following this, the production of L2 products will continue with January 2001 followed by the interval starting at Terra first light. These products will be ingested into AADS. Following delivery of the L3 PGEs, the L3 products for July 2000 and January 2001 will be regenerated for final review by the Atmospheres Team. A go/no-go meeting is expected on 1/10/06. Atmospheres reprocessing is expected to be completed on 8/29/06.

"Collection 5" activities for the MODIS Land products are also progressing. With the current test plan, Terra reprocessing will start not earlier than (NET) 4/27/06 and combined Terra/Aqua reprocessing will start NET 12/23/06. Completion of Land Collection 5 is now expected to be January 2008. The test plan will be reviewed by Chris Justice in December in order to determine if an earlier Terra reprocessing start date can be achieved.

Science/Applications-related Publications involving MODIS

As of December 16, the "ISI Web of Science" shows a total of 963 refereed publications involving MODIS in one way or another. That contrasts with the 888 publications reported at the middle of October or a growth of 75 publications in two months. The total for 2005 is 309 so far as contrasted against 181 in 2004 and 136 in 2003 so the growth in refereed publications using MODIS is impressive and 2005 isn't finished yet! A list of most of the new publications is shown below.

In The "ISI Proceedings" count shows a total of 799 conference /symposium, etc., publications involving MODIS of which 234 have occurred in 2005. Calendar year 2004 had 135 publications and calendar year 2003 had 74 publications.

Lastly there were over 200 presentations involving MODIS at the Fall AGU meeting in San Francisco. This count came from surveying the listings in the AGU meeting CD and should be contrasted against 186 in the Fall 2004 AGU meeting.

Franklin KA, Lyons K, Nagler PL, et al., [Buffelgrass \(*Pennisetum ciliare*\) land conversion and productivity in the plains of Sonora, Mexico](#) , BIOLOGICAL CONSERVATION 127 (1): 62-71 JAN 2006

Kaufman YJ, Remer LA, Tanre D, et al., [A critical examination of the residual cloud contamination and diurnal sampling effects on MODIS estimates of aerosol over ocean](#) IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING 43 (12): 2886-2897 DEC 2005

Tonooka H, [Accurate atmospheric correction of ASTER thermal infrared imagery using the WVS method](#) , IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING 43 (12): 2778-2792 DEC 2005

Tonooka H, [Inflight straylight analysis for ASTER thermal infrared bands](#) , IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING 43 (12): 2752-2762 DEC 2005

Aragao LEOC, Shimabukuro YE, Espirito-Santo FDB, et al., [Spatial validation of the collection 4 MODIS LAI product in eastern amazonia \(vol 43,pg 2526, 2005\)](#) , IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING 43 (12): 2973-2973 DEC 2005

Hutchison KD, Smith S, Faruqui SJ, [Correlating MODIS aerosol optical thickness data with ground-based PM2.5 observations across Texas for use in a real-time air quality prediction system](#) , ATMOSPHERIC ENVIRONMENT 39 (37): 7190-7203 DEC 2005

Kleidman RG, O'Neill NT, Remer LA, et al., [Comparison of moderate resolution Imaging spectroradiometer \(MODIS\) and aerosol robotic network \(AERONET\) remote-sensing](#)

[retrievals of aerosol fine mode fraction over ocean](#) , JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D22): Art. No. D22205 NOV 22 2005

Zhang J, Yang XG, Li YH, et al., [Estimation of surface energy and day evapotranspiration in a dry-farming region of Northwest China using satellite data](#) , CHINESE JOURNAL OF GEOPHYSICS-CHINESE EDITION 48 (6): 1261-1269 NOV 2005

Naud CM, Muller JP, Clothiaux EE, et al., [Intercomparison of multiple years of MODIS, MISR and radar cloud-top heights](#) , ANNALES GEOPHYSICAE 23 (7): 2415-2424 2005

Gallo K, Li L, Reed B, et al., [Multi-platform comparisons of MODIS and AVHRR normalized difference vegetation index data](#) , REMOTE SENSING OF ENVIRONMENT 99 (3): 221-231 NOV 30 2005

Becker MW, Daw A, [Influence of lake morphology and clarity on water surface temperature as measured by EOS ASTER](#) , REMOTE SENSING OF ENVIRONMENT 99 (3): 288-294 NOV 30 2005

Zhang QY, Xiao XM, Braswell B, et al., [Estimating light absorption by chlorophyll, leaf and canopy in a deciduous broadleaf forest using MODIS data and a radiative transfer model](#) REMOTE SENSING OF ENVIRONMENT 99 (3): 357-371 NOV 30 2005

Chang FL, Li ZQ, [A new method for detection of cirrus overlapping water clouds and determination of their optical properties](#) , JOURNAL OF THE ATMOSPHERIC SCIENCES 62 (11): 3993-4009 NOV 2005

Walker ND, Wiseman WJ, Rouse LJ, et al., [Effects of river discharge, wind stress, and slope eddies on circulation and the satellite-observed structure of the Mississippi River plume](#) , JOURNAL OF COASTAL RESEARCH 21 (6): 1228-1244 NOV 2005

Steissberg TE, Hook SJ, Schladow SG, [Characterizing partial upwellings and surface circulation at Lake Tahoe, California-Nevada, USA with thermal infrared images](#) REMOTE SENSING OF ENVIRONMENT 99 (1-2): 2-15 NOV 15 2005

Stefanov WL, Netzband M, [Assessment of ASTER land cover and MODIS NDVI data at multiple scales for ecological characterization of an and urban center](#) , REMOTE SENSING OF ENVIRONMENT 99 (1-2): 31-43 NOV 15 2005

Roberts G, Wooster MJ, Perry GLW, et al., [Retrieval of biomass combustion rates and totals from fire radiative power observations: Application to southern Africa using geostationary SEVIRI imagery](#) , JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D21): Art. No. D21111 NOV 12 2005

Zhao TXP, Laszlo I, Minnis P, et al., [Comparison and analysis of two aerosol retrievals over the ocean in the Terra/Clouds and the Earth's Radiant Energy System - Moderate Resolution Imaging Spectroradiometer single scanner footprint data: 1. Global evaluation](#) JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D21): Art. No. D21208 NOV 9 2005

Zhao TXP, Laszlo I, Minnis P, et al., [Comparison and analysis of two aerosol retrievals over the ocean in the Terra/Clouds and the Earth's Radiant Energy System - Moderate Resolution Imaging Spectroradiometer single scanner footprint data: 2. Regional evaluation](#) , JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D21): Art. No. D21209 NOV 9 2005

Ho SP, Edwards DP, Gille JC, et al., [Estimates of 4.7 Mm surface emissivity and their impact on the retrieval of tropospheric carbon monoxide by Measurements of Pollution in the Troposphere \(MOPITT\)](#) , JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D21): Art. No. D21308 NOV 9 2005

Zhou LM, Dickinson RE, Tian YH, [Derivation of a soil albedo dataset from MODIS using principal component analysis: Northern Africa and the Arabian Peninsula](#) , GEOPHYSICAL RESEARCH LETTERS 32 (21): Art. No. L21407 NOV 8 2005

Myhre G, Kvalevag MM, Schaaf CB, [Radiative forcing due to anthropogenic vegetation change based on MODIS surface albedo data](#) , GEOPHYSICAL RESEARCH LETTERS 32 (21): Art. No. L21410 NOV 9 2005

Frolking S, Fahnestock M, Milliman T, et al., [Interannual variability in North American grassland biomass/productivity detected by SeaWinds scatterometer backscatter](#), GEOPHYSICAL RESEARCH LETTERS 32 (21): Art. No. L21409 NOV 9 2005

Wu D, Tie XX, Li CC, et al., [An extremely low visibility event over the Guangzhou region: A case study](#) , ATMOSPHERIC ENVIRONMENT 39 (35): 6568-6577 NOV 2005

Aragao LEOC, Shimabukuro YE, Espirito-Santo FDB, et al., [Spatial validation of the collection 4 MODIS LAI product in Eastern Amazonia](#) , IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING 43 (11): 2526-2534 NOV 2005

Haertel VF, Shimabukuro YE, [Spectral linear mixing model in low spatial resolution image data](#) , IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING 43 (11): 2555-2562 NOV 2005

Ichoku C, Kaufman YJ, [A method to derive smoke emission rates from MODIS fire radiative energy measurements](#) , IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING 43 (11): 2636-2649 NOV 2005

Li CC, Lau AKH, Mao JT, et al., [Retrieval, validation, and application of the 1-km aerosol optical depth from MODIS measurements over Hong Kong](#), IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING 43 (11): 2650-2658 NOV 2005

Sedano F, Gong P, Ferrao M, [Land cover assessment with MODIS imagery in southern African Miombo ecosystems](#) , REMOTE SENSING OF ENVIRONMENT 98 (4): 429-441 OCT 30 2005

Greuell W, Oerlemans J, [Validation of AVHRR- and MODIS-derived albedos of snow and ice surfaces by means of helicopter measurements](#) , JOURNAL OF GLACIOLOGY 51 (172): 37-48 2005

Vermont EF, Satterfield EA, [Cover: Southern Africa, 2 February 2002 to 16 May 2002, moderate resolution imaging spectroradiometer \(MODIS\) 500m land surface reflectance](#) INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (19): 4137-4139 OCT 10 2005

Hao WM, Ward DE, Susott RA, et al., [Comparison of aerosol optical thickness measurements by MODIS, AERONET sun photometers, and Forest Service handheld sun photometers in southern Africa during the SAFARI 2000 campaign](#) , INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (19): 4169-4183 OCT 10 2005

Sa ACL, Pereira JMC, Silva JMN, [Estimation of combustion completeness based on fire-induced spectral reflectance changes in a dambo grassland \(Western Province, Zambia\)](#) INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (19): 4185-4195 OCT 10 2005

Alleaume S, Hely C, Le Roux J, et al., [Using MODIS to evaluate heterogeneity of biomass burning in southern African savannahs: a case study in Etosha](#) . INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (19): 4219-4237 OCT 10 2005

Morisette JT, Giglio L, Csiszar I, et al., [Validation of the MODIS active fire product over Southern Africa with ASTER data](#) , INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (19): 4239-4264 OCT 10 2005

Roy DP, Frost PGH, Justice CO, et al., [The Southern Africa Fire Network \(SAFNet\) regional burned-area product-validation protocol](#) , INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (19): 4265-4292 OCT 10 2005

Hansen MC, Townshend JRG, Defries RS, et al., [Estimation of tree cover using MODIS data at global, continental and regional/local scales](#) , INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (19): 4359-4380 OCT 10 2005

Huemmrich KF, Privette JL, Mukelabai M, et al., [Time-series validation of MODIS land biophysical products in a Kalahari woodland, Africa](#) , INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (19): 4381-4398 OCT 10 2005

Nauss T, Kokhanovsky AA, Nakajima TY, et al., [The intercomparison of selected cloud retrieval algorithms](#) , ATMOSPHERIC RESEARCH 78 (1-2): 46-78 NOV 2005

Zhang P, Anderson B, Tan B, et al., [Potential monitoring of crop production using a satellite-based Climate-Variability Impact Index](#) , AGRICULTURAL AND FOREST METEOROLOGY 132 (3-4): 344-358 OCT 3 2005

Pace G, Meloni D, di Sarra A, [Forest fire aerosol over the Mediterranean basin during summer 2003](#) , JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D21): Art. No. D21202 NOV 2 2005

Jethva H, Satheesh SK, Srinivasan J, [Seasonal variability of aerosols over the Indo-Gangetic basin](#) , JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D21): Art. No. D21204 NOV 5 2005

Hoff RM, Palm SP, Engel-Cox JA, et al., [GLAS long-range transport observation of the 2003 California forest fire plumes to the northeastern US](#) , GEOPHYSICAL RESEARCH LETTERS 32 (22): Art. No. L22S08 OCT 27 2005

Li J, Gao X, Maddox RA, et al., [Sensitivity of North American monsoon rainfall to multisource sea surface temperatures in MM5](#) , MONTHLY WEATHER REVIEW 133 (10): 2922-2939 OCT 2005

Li J, Huang HL, Liu CY, et al., [Retrieval of cloud microphysical properties from MODIS and AIRS](#) , JOURNAL OF APPLIED METEOROLOGY 44 (10): 1526-1543 OCT 2005

Drolet GG, Huemmrich KF, Hall FG, et al., [A MODIS-derived photochemical reflectance index to detect inter-annual variations in the photosynthetic light-use efficiency of a boreal deciduous forest](#) , REMOTE SENSING OF ENVIRONMENT 98 (2-3): 212-224 OCT 15 2005

Chen DY, Huang JF, Jackson TJ, [Vegetation water content estimation for corn and soybeans using spectral indices derived from MODIS near- and short-wave infrared bands](#) , REMOTE SENSING OF ENVIRONMENT 98 (2-3): 225-236 OCT 15 2005

Luderer G, Coakley JA, Tahnk WR, [Using sun glint to check the relative calibration of reflected spectral radiances](#) , JOURNAL OF ATMOSPHERIC AND OCEANIC TECHNOLOGY 22 (10): 1480-1493 OCT 2005

Rao NS, Ali MM, Rao MV, et al., [Estimation of ship velocities from MODIS and OCM](#) IEEE GEOSCIENCE AND REMOTE SENSING LETTERS 2 (4): 437-439 OCT 2005

Nagler P, Glenn EP, Hursh K, et al., [Vegetation mapping for change detection on an arid-zone river](#) , ENVIRONMENTAL MONITORING AND ASSESSMENT 109 (1-3): 255-274 OCT 2005

Brown IC, Scambos TA, [Satellite monitoring of blue-ice extent near Byrd Glacier, Antarctica](#) , ANNALS OF GLACIOLOGY 39: 223-230 2004

Teng CM, [Dealing with data corruption in remote sensing](#) , LECTURE NOTES IN COMPUTER SCIENCE 3646: 452-463 2005

Dahoui M, Lavanant L, Rabier F, et al., [Use of the MODIS imager to help deal with AIRS cloudy radiances](#) , QUARTERLY JOURNAL OF THE ROYAL METEOROLOGICAL SOCIETY 131 (610): 2559-2579 Part B JUL 2005

Smyth TJ, Tilstone GH, Groom SB, [Integration of radiative transfer into satellite models of ocean primary production](#) , JOURNAL OF GEOPHYSICAL RESEARCH-OCEANS 110 (C10): Art. No. C10014 OCT 14 2005

Kokhanovsky AA, Nauss T, [Satellite-based retrieval of ice cloud properties using a semianalytical algorithm](#) , JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D19): Art. No. D19206 OCT 12 2005

Ito A, Penner JE, [Estimates of CO emissions from open biomass burning in southern Africa for the year 2000](#) , JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D19): Art. No. D19306 OCT 14 2005

Lee SW, Klein AG, Over TM, [A comparison of MODIS and NOHRSC snow-cover products for simulating streamflow using the Snowmelt Runoff Model](#) , HYDROLOGICAL PROCESSES 19 (15): 2951-2972 OCT 15 2005

Naud C, Muller JP, de Valk P, [On the use of ICESAT-GLAS measurements for MODIS and SEVIRI cloud-top height accuracy assessment](#) , GEOPHYSICAL RESEARCH LETTERS 32 (19): Art. No. L19815 OCT 13 2005

Rahman AF, Sims DA, Cordova VD, et al., [Potential of MODIS EVI and surface temperature for directly estimating per-pixel ecosystem C fluxes](#) , GEOPHYSICAL RESEARCH LETTERS 32 (19): Art. No. L19404 OCT 15 2005

Krijger JM, Aben I, Schrijver H, [Distinction between clouds and ice/snow covered surfaces in the identification of cloud-free observations using SCIAMACHY PMDs](#) , ATMOSPHERIC CHEMISTRY AND PHYSICS 5: 2729-2738 OCT 18 2005

Brown SW, Johnson BC, Biggar SF, et al., [Radiometric validation of NASA's Ames Research Center's Sensor Calibration Laboratory](#) , APPLIED OPTICS 44 (30): 6426-6443 OCT 20 2005

Zhou M, Yu H, Dickinson RE, et al., [A normalized description of the direct effect of key aerosol types on solar radiation as estimated from Aerosol Robotic Network aerosols and](#)

[Moderate Resolution Imaging Spectroradiometer albedos](#) , JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES 110 (D19): Art. No. D19202 OCT 5 2005

Stow D, Niphadkar M, Kaiser J, [MODIS-derived visible atmospherically resistant index for monitoring chaparral moisture content](#) , INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (17): 3867-3873 SEP 10 2005

Loeb NG, Manalo-Smith N, [Top-of-atmosphere direct radiative effect of aerosols over global oceans from merged CERES and MODIS observations](#) , JOURNAL OF CLIMATE 18 (17): 3506-3526 SEP 1 2005

Pozdnyakov DV, Korosov AA, Pettersson LH, et al., [MODIS evidences the river run-off impact on the Kara Sea trophy](#) , INTERNATIONAL JOURNAL OF REMOTE SENSING 26 (17): 3641-3648 SEP 10 2005

Yuan DL, Qiao FL, Su J, [Cross-shelf penetrating fronts off the southeast coast of China observed by MODIS](#) , GEOPHYSICAL RESEARCH LETTERS 32 (19): Art. No. L19603 OCT 7 2005

Yuan JC, Dagg MJ, Del Castillo CE, [In-pixel variations of chl a fluorescence in the Northern Gulf of Mexico and their implications for calibrating remotely sensed chl a and other products](#) , CONTINENTAL SHELF RESEARCH 25 (15): 1894-1904 SEP 2005

Chen XX, Vierling L, Deering D, [A simple and effective radiometric correction method to improve landscape change detection across sensors and across time](#) , REMOTE SENSING OF ENVIRONMENT 98 (1): 63-79 SEP 30 2005

Fritz S, Lee L, [Comparison of land cover maps using fuzzy agreement](#) , INTERNATIONAL JOURNAL OF GEOGRAPHICAL INFORMATION SCIENCE 19 (7): 787-807 AUG 2005

Al-Saadi J, Szykman J, Pierce RB, et al., [Improving national air quality forecasts with satellite aerosol observations](#) , BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY 86 (9): 1249+ SEP 2005

Bacour C, Breon FM, [Variability of biome reflectance directional signatures as seen by POLDER](#) , REMOTE SENSING OF ENVIRONMENT 98 (1): 80-95 SEP 30 2005

Korontzi S, [Seasonal patterns in biomass burning emissions from southern African vegetation fires for the year 2000](#) , GLOBAL CHANGE BIOLOGY 11 (10): 1680-1700 OCT 2005

Spinhirne JD, Palm SP, Hart WD, [Antarctica cloud cover for October 2003 from GLAS satellite lidar profiling](#) , GEOPHYSICAL RESEARCH LETTERS 32 (22): Art. No. L22S05 SEP 30 2005

Werdell PJ, Bailey SW, [An improved in-situ bio-optical data set for ocean color algorithm development and satellite data product validation](#) , REMOTE SENSING OF ENVIRONMENT 98 (1): 122-140 SEP 30 2005